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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/606,734	06/29/2000	David Black	07072-113001	6696

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SUITE 101  
275 TURNPIKE STREET  
CANTON, MA 02021-2310

EXAMINER

NGUYEN, THAN VINH

ART UNIT	PAPER NUMBER
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2187

DATE MAILED: 03/19/2003

3

Please find below and/or attached an Office communication concerning this application or proceeding.

8

**Office Action Summary**

Application No.

09/606,734

Applicant(s)

BLACK ET AL.

Examiner

Than Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 February 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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#### DETAILED ACTION

1. Claims 1-26 are presented for examination.
2. The IDS, filed 2/4/02, has been considered.

#### *Specification*

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
4. The following title is suggested: Method for Message Transfer in Computer Storage System.

#### *Claim Rejections - 35 USC § 112*

5. Claims 15,23,24,25,26 recites the limitation "the cache memory". There is insufficient antecedent basis for this limitation in the claim.

#### *Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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7. Claims 1,2,4,5,7,8,10-12,14-16,18-20,22-26 are rejected under 35 U.S.C. 102(a) as being anticipated by Thibault et al (USP 6,061,274).

As to claim 1:

Thibault teaches methods and apparatus for message transfer in computer storage system including an array of storage devices, a system cache memory, back end directors for controlling data transfer between the storage devices and system cache memory, and front end directors for controlling data transfer between the cache memory and host computer. Thibault teaches a method of transferring data comprising:

preparing, in one of the directors, a message to be sent to a receiving director(s) 7/1-5;

Figure 6);

building a descriptor comprising a command field indicating the receiving director(s) to receive the message (destination address; 7/25-38);

encapsulating the message payload of the descriptor into a packet, such packet comprising:

a header, such header including: a source portion indicating the transmitting director; a destination portion indicating the receiving director (7/55-59);

the message payload (message body; 7/58);

transmitting the packet to the director(s) through the network (7/40-8/10);

decoding the destination portion of the packet to route the packet to the receiving director (8/19-22; 5/30-35; Figure 6).

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As to claims 2,5,8,12,16,20:

Thibault teaches receiving the transmitted packet in the director(s) (Figure 7; 8/11-20);  
determining if the received packet is from a proper transmitting director (Figure 7; 8/18-23);  
deencapsulating the received packet after determining that the packet is from a proper transmitting director (Figure 7; 8/34-54).

As to claims 4,11,19:

Thibault teaches methods and apparatus for message transfer in computer storage system including an array of storage devices, a system cache memory, back end directors for controlling data transfer between the storage devices and system cache memory, and front end directors for controlling data transfer between the cache memory and host computer. Thibault teaches a method of transferring data comprising:

preparing, in one of the directors, a message to be sent to a receiving director(s) 7/1-5;  
Figure 6);

building a descriptor comprising: a message payload indicating an address in the bank of disk drives having the requested data (7-52-67) and a command field indicating the receiving director(s) to receive the message (destination address; 7/25-38);

encapsulating the message payload of the descriptor into a packet, such packet comprising:

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a header, such header including: a source portion indicating the transmitting director; a destination portion indicating the receiving director (7/55-59);

the message payload (message body; 7/58);

transmitting the packet to the director(s) through the network (7/40-8/10);

decoding the destination portion of the packet to route the packet to the receiving director (8/19-22; 5/30-35; Figure 6);

As to claims 7,10,14,18,22:

Thibault teaches methods and apparatus for message transfer in computer storage system including an array of storage devices, a system cache memory, back end directors for controlling data transfer between the storage devices and system cache memory, and front end directors for controlling data transfer between the cache memory and host computer. Thibault teaches a method of transferring data comprising:

determining that action is requested by a receiving director (request for data; 3/30-35);

preparing, in one of the directors, a message to be sent to a receiving director(s) 7/1-5;

Figure 6);

building a descriptor comprising a command field indicating the receiving director(s) to receive the message (destination address; 7/25-38);

storing the descriptor in a memory (write message to memory 250/transmit buffer; 7/39-45);

increment a pointer or counter each time a descriptor is ready to be retrieved (7/5-8);

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retrieving the stored descriptor from the memory (get message from memory 250; 7/39-52);

encapsulating the message payload of the descriptor into a packet, such packet comprising:

a header, such header including: a source portion indicating the transmitting director; a destination portion indicating the receiving director (7/55-59);

the message payload (message body; 7/58);

transmitting the packet to the director(s) through the network (7/40-8/10);

decoding the destination portion of the packet to route the packet to the receiving director (8/19-22; 5/30-35; Figure 6).

As to claims 15:

Thibault teaches methods and apparatus for message transfer in computer storage system including an array of storage devices, a system cache memory, back end directors for controlling data transfer between the storage devices and system cache memory, and front end directors for controlling data transfer between the cache memory and host computer. Thibault teaches a method of transferring data comprising:

determining that data requested for transfer is unavailable in the cache (check cache for data; 1/19-23; 3/35-40);

preparing, in one of the directors, a message to be sent to a receiving director(s) 7/1-5; Figure 6);

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building a descriptor comprising a command field indicating the receiving director(s) to receive the message (destination address; 7/25-38);

storing the descriptor in a memory (write message to memory 250/transmit buffer; 7/39-45);

increment a pointer or counter each time a descriptor is ready to be retrieved (7/5-8);

retrieving the stored descriptor from the memory (get message from memory 250; 7/39-52);

decrementing the pointer or counter when the descriptor is retrieved from the memory (7/5-8);

encapsulating the message payload of the descriptor into a packet, such packet comprising:

a header, such header including: a source portion indicating the transmitting director; a destination portion indicating the receiving director (7/55-59);

the message payload (message body; 7/58);

transmitting the packet to the director(s) through the network (7/40-8/10);

decoding the destination portion of the packet to route the packet to the receiving director (8/19-22; 5/30-35; Figure 6).

As to claims 23-26:



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Thibault teaches the messages are passed between the directors through the messaging network while the data passes through the cache memory via the data transfer section (2/15-20, 50-62).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 3,6,9,13,17,21 are rejected under 35 U.S.C. 103(a) as being obvious over Thibault et al (USP 6,061,274).

10. The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e).

This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CAR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CAR 1.131; or (3) an oath or declaration under 37 CAR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior

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inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CAR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

11. As to claims 3,6,9,13,17,21:

Thibault does not teach the director sending an acknowledge receipt of the packet. It is common in the art of packet transmission to send an acknowledgment of receipt of the packet to tell the sender that the package has been received. This acknowledgment provides for a more secure/reliable method of packet transfer. Thus, it would have been obvious to one of ordinary skills in the art to send an acknowledgment of receipt of the packet to tell the sending director that the package has been received to provide for a more secure/reliable method of packet transfer.

### *Conclusion*

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Than Nguyen whose telephone number is (703) 305-3866. The examiner can normally be reached on M-F from 8:00 a.m. to 3:00 p.m. EST.

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13. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-9600.

14. The fax phone number for Art Unit 2187 is 703-308-9051 or 703-308-9052.



Than Nguyen

Primary Patent Examiner

March 13, 2003